with the container fluid **24**. Again, the gap **27** between the cantilever **15** and the flow-limiting means **25** should be big enough to allow correct operation of the investigation and/or manipulation tool **26** and nevertheless designed to ensure the protection of the dry region, i.e. where the container fluid **24** is not allowed to flow, from the container fluid **24**. In the dry region again all advantages of the invention occur, e.g. the possibility to use a piezoresistive sensing means **20** without a fluid-impermeable sealing means.

The term "fluid" in the context of the invention shall include liquids, such as water, as well as gases. As the tool **26** particularly an AFM tip can be used. This tip **26** is approached to the surface of the sample **30** and is attracted by the atomic forces of the surface molecules of the sample **30**. The deflection is also effective on the cantilever **15** which provides a restoring force to the tip **26**. The deflection of the cantilever **15** can then be measured with any known sensing method, e.g. by measurement of light reflected at the cantilever **15** or capacitive measurement, using the cantilever **15** as one of the capacitor plates. When the distance between the tool **26** and the sample **30** is reduced such that the tool **26** touches the surface of the sample **30** then the tool **26** can be used to create indentations and hence arbitrary patterns on the surface of the sample **30**.

Concerning the positioning process, various possibilities exist, e.g. positioning the sample **30** while not moving the cantilever **15** with the tool **26**, or moving both with one or several positioning means **10**. With such an arrangement for instance a coarse approach, i.e. with a large motion range but a small motion resolution between the sample **30** and the tool **26** can be achieved by one of the positioning means **10** and a fine approach, i.e. an approach with a small motion range but a high motion resolution can be achieved with the other positioning means **10**.

The movable means **16** can comprise a solid material but also fluidic material, such as e.g. a magnetic oil which is held in the gap **27** by a magnetic arrangement. Such a fluidic movable means **16** has extremely low mass and low viscosity which leads to an extremely high movability, respectively flexibility. Also other viscous media, e.g. a lipid film may be used as movable means **16**. Generally, the movable means **16** can as well be flexible means, elastic means, or any combination of the same. The movability need only be adapted to the needs that are provided by the arrangement.

The sample **30** can also already be immersed in a droplet or more of the container liquid **24** when it is introduced into the arrangement, respectively into the lower chamber, which makes clear that the supply-removing means **19** is not obligatory.

The invention provides a possibility to investigate and/or manipulate the sample **30** which is immersed in the container fluid **24** while the cantilever **15** is not immersed totally in the container fluid **24**. If one simply immersed the cantilever **15** partly into the container fluid **24**, the capillary force of the interface between the container fluid **24**, the adjacent medium, e.g. air, and the cantilever **15** would have a direct disturbing influence on the cantilever behavior. The solution of this problem according to the prior art was to immerse the cantilever **15** totally in the container fluid **24**. The invention goes another way in that the arrangement of the cantilever **15** and of its environment is designed such that the cantilever **15** is not disturbed by such forces. To design the arrangement in a way which decreases or even avoids meniscal or capillary forces or their effect on the cantilever **15** is an object of the invention. This is obtained by either positioning the menisci **34** away from the cantilever **15** or positioning them at a portion of the cantilever **15** where the influence of the forces is reduced, e.g. because the momentum created by the forces is reduced due to a shorter effective lever and/or by positioning them such that the created force is directed stronger in the direction perpendicular to the direction in which the tool **26** is lowered onto the sample **30**, here the z-direction. The container fluid **24** then influences the measurement to the lowest extent.

Any disclosed embodiment may be combined with one or several of the other embodiments shown and/or described. This is also possible for one or more features of the embodiments.

What is claimed is:

1. Investigation and/or manipulation device for a sample which is located in a container fluid, comprising:

a cantilever;

an investigation and/or manipulation tool which is mounted at a first side of said cantilever and which during investigation and/or manipulation of said sample immerses into said container fluid; and

means for positioning said investigation and/or manipulation tool relative to said sample,

wherein during investigation and/or manipulation, a second side of said cantilever which lies opposite to said first side is at least partly not immersed into said container fluid.

2. Investigation and/or manipulation device according to claim **1**, further comprising an adjacent flow-limiting means separated from said cantilever by a gap,

wherein the second side of the cantilever is at least partly not immersed into the container fluid because said cantilever is separated from said adjacent flow-limiting means by said gap through which said container fluid is prevented from flowing.

3. Investigation and/or manipulation device according to claim **2**, further comprising movable means, arranged in said gap, for preventing said container fluid from flowing through the gap.

4. Investigation and/or manipulation device according to claim **2** wherein said container fluid has a surface tension which prevents said container fluid from flowing through the gap.

5. Investigation and/or manipulation device according to claim **4**, wherein said gap is dimensioned such that the surface tension of the container fluid prevents said container fluid (**24**) from flowing through said gap.

6. Investigation and/or manipulation device according to claim **2**, further comprising a counter-pressure-exerting means for exerting a counter-pressure on said container fluid such that said container fluid is prevented from flowing through the gap.

7. Investigation and/or manipulation device according to claim **2**, further comprising an assistant fluid for building an interface towards said container fluid, thereby preventing said container fluid from flowing through the gap.

8. Investigation and/or manipulation device according to claim **1**, further comprising an adjacent flow-limiting means connected to said cantilever, such that the second side of the cantilever is at least partly not immersed into the container fluid.

9. Investigation and/or manipulation device according to claim **1**, further comprising sensing means for sensing a deflection of the cantilever due to a force between the sample and the investigation and/or manipulation tool.

10. Investigation and/or manipulation device according to claim **9**, wherein said sensing means is located at the second side of the cantilever.